ABSTRACT

A system and method for a transparent WDM metro ring architecture in which optics enables simultaneous provisioning of dedicated wavelengths for high-end user terminals, while low-end user terminals share wavelengths on "virtual rings". All wavelengths are sourced by the network and remotely modulated at customer "End Stations" by low cost semiconductor optical amplifiers, which also serve as transmission amplifiers. The transparent WDM metro ring architecture permits the communication of information and comprises a fiber optical feeder ring, at least one fiber optical distribution ring, a network node (NN), at least one access node (AN) said network node and said at least one access node connected via said fiber optical feeder ring and at least one end station (ES) connected via said fiber optical distribution ring to said at least one access node, wherein said user is attached to said at least one end station. A simple node that supports bi-directional propagation in transparent WDM metro architectures using "virtual rings" is also described. A method for communicating information over a WDM fiber optical ring network architecture in a metro access arena using one or more wavelengths, which can be shared by a plurality of user terminals, each user terminal coupled to an end station comprises the steps of sending downstream data packets, sending optical chalkboard packets consisting of ones and sending control signals.